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| 10/552,728 | 10/11/2005 | Koso Fujino | 017700-0179 | 9461 |

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| EXAMINER |
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WARTALOWICZ, PAUL A

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| ART UNIT | PAPER NUMBER |
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1735

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10/08/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--|--------------------------------------|--|
| Office Action Summary | Application No. 10/552,728 | Applicant(s) FUJINO ET AL. | |
| | Examiner PAUL A. WARTALOWICZ | Art Unit 1793 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,9 and 15-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,9,15-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 3,9,15-22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. It appears that a pressure of less than 1.33×10^2 Pa does not have support in the specification. It appears that a pressure of less than 1.33×10^{-2} Pa does have support in applicant's specification at page 11, lines 5-6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3, 9, 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kreiskott ("Continuous electropolishing of Hastelloy...") in view of JP 07-105750 (hereinafter '750: please refer to the machine translation attached to this office action) and Hsu (US 6569745) and Christen (US 6296701).

Kreiskott teaches a method of making a superconductor (Abstract) wherein a nickel substrate is planarized by electrolytic polishing, wherein the substrate tape is continuously passed through a mixture of phosphoric and sulfuric acid (positive electrode) wherein gold electrodes are placed in the bath (negative electrode) (page 614, first column) wherein a current is passed through the electrodes comprising the circuit (page 614, first column) wherein the surface roughness (Ra) is approximately 20 nm (pg 614, second column). Additionally, it appears that the substrate is between the negative (acid bath) and positive electrode (gold electrode). After the electropolishing step, a layer of MgO is deposited on the substrate, after which a layer of YBCO is deposited on the MgO layer (pg 616, first column).

'750 teaches a superconductor wire [0001] wherein the angle Φ (made by the normal X of the crystal surface and the Y of the polycrystalline metal base body) is less

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than 15° and angle θ formed by connecting crystal particles is less than 10° (Abstract, [0023]) for the purpose of reducing micro unevenness of the grain boundary [0023].

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a substrate having an angle Φ (made by the normal X of the crystal surface and the Y of the polycrystalline metal base body) is less than 15° and angle θ formed by connecting crystal particles is less than 10° (Abstract, [0023]) in Kreiskott in order to reduce micro unevenness of the grain boundary [0023] as taught by '750.

It appears that the angles disclosed in '750, namely that the angle Φ (made by the normal X of the crystal surface and the Y of the polycrystalline metal base body) is less than 15° and angle θ formed by connecting crystal particles is less than 10° (Abstract, [0023]) overlaps with and inherently meets the limitation of crystal axis offset relative to an orientation axis by at most 10° .

If '750 does not inherently teach a crystal axis offset relative to an orientation axis by at most 10° , it would be obvious to reduce the crystal axis offset relative to an orientation axis to overlap with a range of at most 10° because '750 teaches that reducing micro unevenness of the grain boundary is desired for superconductor properties [0023].

Hsu teaches a method of making a superconducting article (col. 1) wherein it is known to planarize a layer to a thickness of between 50-500 nm (col. 2).

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Therefore, it would have been obvious to one of ordinary skill in the art to planarize a layer to a thickness of between 50-500 nm (col. 2) in Kreiskott in order to produce a superconducting article as taught by Hsu.

Kreiskott fails to teach thermally treating said textured metal substrate at a temperature of 500-800°C, more preferably 600-700°C, in either a vacuumed or reduced atmosphere at least once.

Christen, however, teaches a method of making biaxial substrates for superconductors (col. 1, lines 14-18) wherein a nickel substrate is annealed in a vacuum atmosphere, or reducing atmosphere, at a temperature of 600-900°C for 5 hours for the purpose of removing metallic oxides and other impurities (col. 8, lines 16-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide annealing the nickel substrate of Kreiskott in a vacuum atmosphere, or reducing atmosphere, at a temperature of 600-900°C for 5 hours in order to remove metallic oxides and other impurities (col. 8, lines 16-30) as taught by Christen.

Regarding claims 19 and 20, it appears that the range of annealing temperature disclosed by Christen overlaps with that of claims 19 and 20. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. MPEP 2144.05 (I).

Regarding claim 21, Christen teaches that the atmosphere for cleaning is a vacuumed atmosphere (col. 8, lines 20-25). The range of pressure of less than 1 atm

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(equivalent to 1.01×10^5 Pa) taught by Christen overlaps with the claimed range of less than 1.33×10^2 Pa. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. MPEP 2144.05 (I).

Regarding claim 22, Christen teaches annealing for 5 hours (col. 8, lines 16-30).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Paul A Wartalowicz/

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